

“Computer Networks Virtual Lab”

A Virtual Lab Report submitted for

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

This is to certify that the Project Work entitled

“Computer Networks (19BT40531)“

is the bonafide work done by

M.NIKHIL KUMAR REDDY (19121A05D9)

Under the Guidance of

Mr. K.Balaji
Assistant Professor
Dept of CSE, SVEC



SREE VIDYANIKETHAN ENGINEERING COLLEGE
Department of Computer Science and Engineering
(Affiliated to JNTUA, Anantapuramu)
Sree Sainath Nagar, Tirupathi – 517 102
2021-2022



SREE VIDYANIKETHAN ENGINEERING COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur)
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Virtual Lab Work entitled
“Computer Networks Lab”

is the bonafide work done by

M.NIKHIL KUMAR REDDY (19121A05D9)

In the Department of Computer Science and Engineering, Sree Vidyanikethan Engineering College, A.Rangampet. is affiliated to JNTUA, Anantapuramu in partial fulfillment of the requirements for the VLab in Computer Science and Engineering during 2021-2022.

INTERNAL EXAMINER

EXTERNAL EXAMINER

Page No.

NAME OF THE EXPERIMENT

Date:

Ex No.:

Aim: Write the program for static Routing algorithm that is used in packet tracer.

Description: In static Routing ,the path between the Sender and Receiver is fixed.

Program:

Router 1 Configurations :

```
Router(config)# interface GigabitEthernet 0/0
```

```
Router(config-if)# ip address 192.16.1.1 255.255.0.0
```

```
Router(config-if)# no shutdown
```

```
Router(config)# interface Serial 0/1/0
```

```
Router(config-if)# ip address 10.0.0.1 255.0.0.0
```

```
Router(config-if)# no shutdown
```

```
Router(config-if)# no shutdown
```

Router 2 Configurations :

```
Router(config)# interface GigabitEthernet 0/0
```

```
Router(config-if)# ip address 192.16.2.1 255.255.0.0
```

```
Router(config-if)# no shutdown
```

```
Router(config)# interface Serial 0/1/0
```

```
Router(config-if)# ip address 10.0.0.2 255.0.0.0
```

```
Router(config-if)# no shutdown
```

```
Router(config-if)# no shutdown
```

Static Routing Configurations :

R1 :

```
Router(config)# ip route 192.16.2.0 255.255.0.0 10.0.0.1
```

Page No.

NAME OF THE EXPERIMENT

Date :
Ex. No.:

R2 :

```
Router(config)# ip route 172.16.1.0 255.255.0.0
                           10.0.0.2
```

Result :

The static Routing algorithm is compiled successfully .



Page No.

NAME OF THE EXPERIMENT

Date:

Ex. No.:

Aim: Write the program for dynamic Routing algorithm that is used in packettracer.

Description: In dynamic Routing the path is not fixed.

Program:

Router 1 Configurations :

```
Router (config) # interface GigabitEthernet 0/0
Router (config-if) # ip address 172.16.1.1 255.255.0.0
Router (config-if) # no shutdown
Router (config) # interface serial 0/1/0
Router (config-if) # ip address 10.0.0.1 255.0.0.0
```

Router 2 Configuration :

```
Router (config) # interface GigabitEthernet 0/0
Router (config-if) # ip address 172.16.2.1 255.255.0.0
Router (config-if) # no shutdown
Router (config) # interface serial 0/1/0
Router (config-if) # ip address 10.0.0.2 255.0.0.0
Router (config-if) # no shutdown
```

RJ :

```
Router (config) # router rip
Router (config-router) # network 172.16.2.0
Router (config-router) # network 172.16.1.0
Router (config-router) # network 10.0.0.2
```

Page No.

NAME OF THE EXPERIMENT

Date :

Ex. No.:

R2 :

```

Router (config) # router rip
Router (config-router) # network 192.16.2.0
Router (config-router) # network 192.16.1.0
Router (config-router) # network 10.0.0.1
Router (config-router) # network
  
```

Result :

program for dynamic routing algorithm is
successfully compiled.



Page No.

NAME OF THE EXPERIMENT

Date:

Ex. No.:

Aim :

Write the program for leaky bucket algorithm

Description :

leaky bucket is a traffic shaping algorithm. It is mechanism to control the amount and the rate of the traffic sent to the network.

Program :

```
import java.io.*;
import java.util.*;

class leakybucket {
    public static void main(String[] args) {
        int a, s, l;
        int i, b;
        s = 0;
        a = 4;
        b = 10;
        i = 4;
        l = 4;
        for (int i = 0; i < a; i++) {
            l = b - s;
            if (i <= l) {
                s += i;
                System.out.println("Buffer size = " + s +
                    "out of bucket size = " + b);
            } else {
                System.out.println("packet loss = " +
                    (i - l));
                s = b;
            }
        }
    }
}
```



Page No.

NAME OF THE EXPERIMENT

Date:

Ex No.:

```
System.out.println("Buffer size = " + s + "out of
bucket size = " + b);
```

{}

```
s = s - 0;
```

{}

{}

{}

Result:

The above program is successfully compiled



Virutal lab

Screenshot of a web browser window showing the "Computer Networks Lab" page from IIT Bombay's virtual labs.

The browser title bar reads "Virtual Labs". The address bar shows "Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/index.php". The page header includes the IIT Bombay logo and navigation links for HOME, LABS, and GITLAB.

Computer Networks Lab

Fabrication of Cables

[Peer to Peer Topology](#)

[Star Topology](#)

[IPv4 Addressing](#)

[IPv4 Subnetting](#)

[Windows File Sharing](#)

Activate Windows
Go to Settings to activate Windows.

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/index.php

Type here to search

12:55 PM 6/28/2021 ENG IN

1.fabrication of cables:

Virtual Labs × +

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Apps Gmail YouTube Maps WhatsApp Computer Organiza... Binary Search Tree I... Different collision r... Email - 20125A052... Virtual Labs Reading list

Computer Networks > Fabrication of Cables > Aim

Fabrication of Cables

Aim

1) To practise the colour code for different cables.
2) Observe the Lan Tester and make the decision accordingly.

Activate Windows
Go to Settings to activate Windows.

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O E Microsoft Edge File Explorer Camera Google Chrome Word

ENG IN 12:56 PM 6/28/2021

Virtual Labs x +

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/theory.php

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CON = Computer Networks > Fabrication of Cables > Theory

Fabrication of Cables

Theory

A twisted pair consists of two insulated conductor twisted together in the shape of a spiral. It can be shielded or unshielded. The unshielded twisted pair cables are very cheap and easy to install. But they are very badly affected by the electromagnetic noise interference.

Twisting of wires will reduce the effect of noise or external interference. The induced emf into the two wires due to interference tends to cancel each other due to twisting. Number of twists per unit length will determine the quality of cable. More twists means better quality.

There are 3 types of UTP cables:-

- 1) Straight-through cable
- 2) Crossover cable
- 3) Roll-over cable

A. Straight-through cable
Straight-Through refers to cables that have the pin assignments on each end of the cable. In other words Pin 1 connector A goes to Pin 1 on connector B, Pin 2 to Pin 2 ect. Straight-Through wired cables are most commonly used to connect a host to client. When we talk about cat5e patch cables, the Straight-Through wired cat5e patch cable is used to connect computers, printers and other network client devices to the router switch or hub (the host device in this instance).

B. Crossover cable
Crossover wired cables (commonly called crossover cables) are very much like Straight-Through cables with the exception that TX and RX lines are crossed (they are at oposite positions on either end of the cable). Using the 568-B standard as an example below you will see that Pin 1 on connector A goes to Pin 3 on connector B. Pin 2 on connector A goes to Pin 6 on connector B ect. Crossover cables are most commonly used to connect two hosts directly. Examples would be connecting a computer directly to another computer, connecting a switch directly to another switch, or connecting a router to a router. Note: While in the past when connecting two host devices directly a crossover cable was required. Now days most devices have auto sensing technology that detects the cable and device and crosses pairs when needed.

C. Roll-over cable
Rollover wired cables most commonly called rollover cables, have opposite Pin assignments on each end of the cable or in other words it is "rolled over". Pin 1 of connector A would be connected to Pin 8 of connector B. Pin 2 of connector A would be connected to Pin 7 of connector B and so on. Rollover cables, sometimes referred to as Yost cables are most commonly used to connect to a devices console port to make programming changes to the device. Unlike crossover and straight-wired cables, rollover cables are not intended to carry data but instead create an interface with the device.

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ENG 12:56 PM IN 6/28/2021 Notification

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IIT Bombay

HOME LABS GITLAB

Computer Networks ≡ Computer Networks > Fabrication of Cables > Procedure

fab Aim

fab Theory

fab Pre Test

fab Procedure

fab Simulation

fab Post Test

fab References

Fabrication of Cables

Procedure

- 1) The aim is to Fabricate a UTP Cable.
- 2) To perform the experiment follow the below steps
- 3) A choice list would be given that which type of cable is to be fabricated
- 4) Select the choice out of the three choices given
- 5) Once a selection is done then the user have to make the cable ready
- 6) In-order to do so select the color codes on both the sides i.e Switch port and PC port.
- 7) After assigning the color codes click on the Start button to observe that the cable made is correct or not.
- 8) Based on the observations made select if cable made is correct or not.

Activate Windows
Go to Settings to activate Windows.



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Computer Networks ≡

 Computer Networks > Fabrication of Cables > Simulation

Fabrication of Cables

Simulation

[Click here for Simulation](#)

 Pop Up Procedure



Aim

Theory

Pre Test

Procedure

Simulation

Post Test

References

Activate Windows
Go to Settings to activate Windows.

javascript:newPopup1('exp1.html');

Type here to search

Windows Start button

System tray icons: Task View, File Explorer, Google Chrome, Microsoft Edge, and others.

System status: ENG IN 12:57 PM 6/28/2021

Fabrication of straight cable:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html

Fabricate Cable

Which cable you want to fabricate?

Switch port	Port
Choose Option	Choose Option

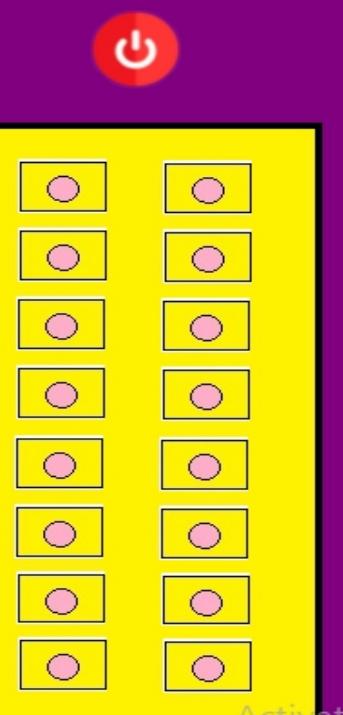
choose cable ▾

choose cable

Straight

Cross

RoleOver



Activate Windows
Go to Settings to activate Windows.

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6/28/2021

Give the color code for the given two ports:

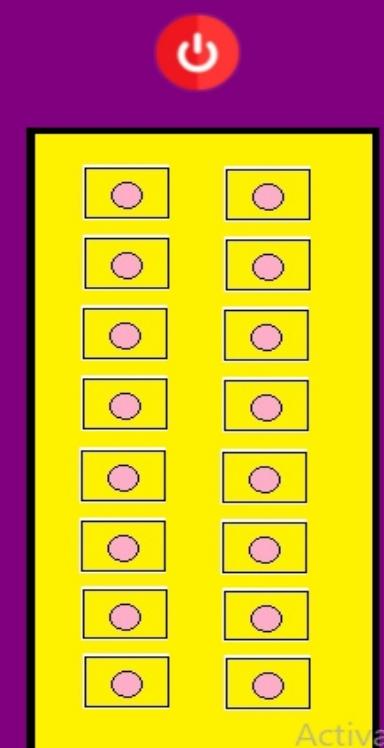
vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html - Google Chrome

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Fabricate Cable

Which cable you want to fabricate? Straight

Switch port	PC Port
Orange	Orange
Choose Option	Choose Option



Activate Windows
Go to Settings to activate Windows.

Type here to search

12:58 PM 6/28/2021 ENG IN

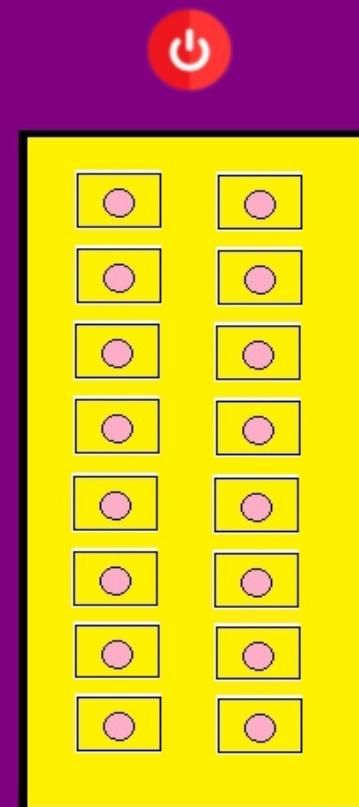
⚠ Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html

Fabricate Cable

Which cable you want to fabricate?

Straight ▾

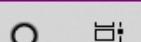
Switch port	PC Port
Orange ▾	Orange ▾
Orange & White ▾	Orange & White ▾
Blue ▾	Blue ▾
Blue & White ▾	Blue & White ▾
Green ▾	Green ▾
Green & White ▾	Green & White ▾
Brown & White ▾	Brown & White ▾
Brown ▾	Brown ▾



Activate Windows
Go to Settings to activate Windows.



Type here to search



Click on the start button:

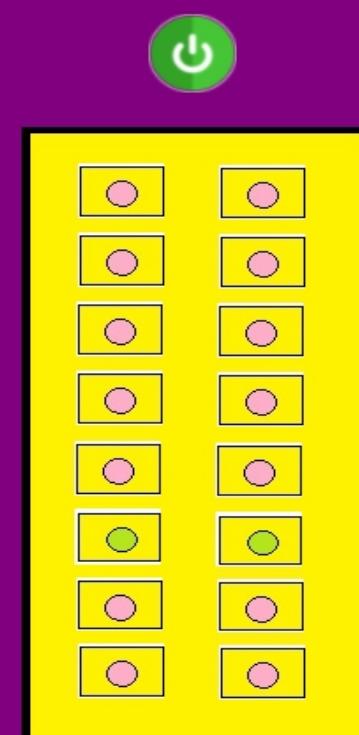
vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html

Fabricate Cable

Which cable you want to fabricate? Straight

Switch port	PC Port
Orange	Orange
Orange & White	Orange & White
Blue	Blue
Blue & White	Blue & White
Green	Green
Green & White	Green & White
Brown & White	Brown & White
Brown	Brown



Activate Windows
Go to Settings to activate Windows.

Type here to search

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6/28/2021

Which cable you want to fabricate?

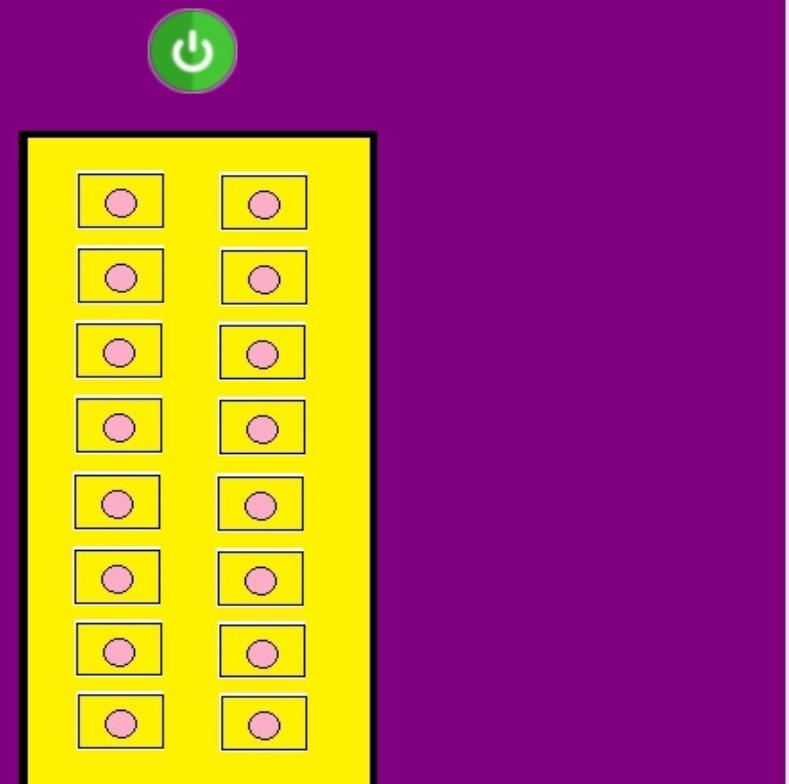
Straight ▾

vlabs.iitb.ac.in says
did you made right cable ? (Yes = ok/No = cancel)

OK

Cancel

Switch port	PC Port
Orange ▾	Orange ▾
Orange & White ▾	Orange & White ▾
Blue ▾	Blue ▾
Blue & White ▾	Blue & White ▾
Green ▾	Green ▾
Green & White ▾	Green & White ▾
Brown & White ▾	Brown & White ▾
Brown ▾	Brown ▾



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Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html

vlabs.iitb.ac.in says
cable is right

OK

Which cable you want to fabricate? Straight

Switch port	PC Port
Orange	Orange
Orange & White	Orange & White
Blue	Blue
Blue & White	Blue & White
Green	Green
Green & White	Green & White
Brown & White	Brown & White
Brown	Brown

Activate Windows
Go to Settings to activate Windows.

Type here to search

Windows Start Task View File Internet Explorer File Explorer Camera Google Chrome Microsoft Edge

ENG IN 12:59 PM 6/28/2021 2

Fabrication of cross cable:

Give the correct color code for the switch port and PC port:

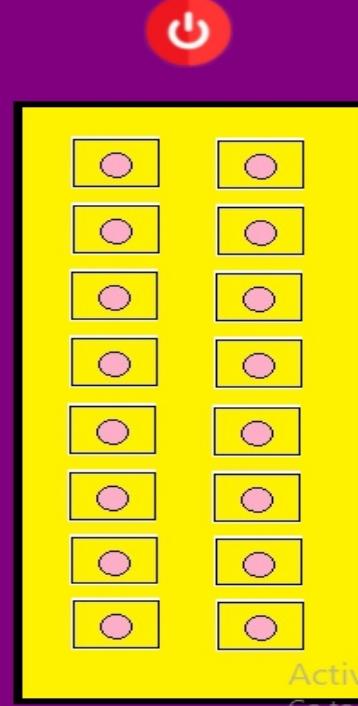
vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html - Google Chrome

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Fabricate Cable

Which cable you want to fabricate? Cross

Switch port	PC Port
Orange	Blue
Choose Option	Choose Option



Activate Windows
Go to Settings to activate Windows.

Type here to search

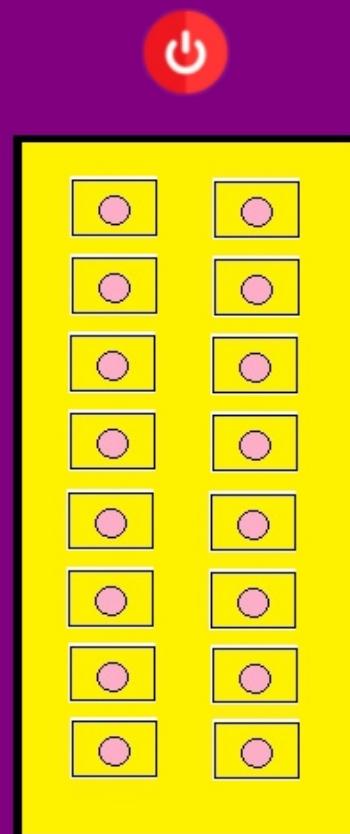
1:45 PM
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6/28/2021

Fabricate Cable

Which cable you want to fabricate?

Cross

Switch port	PC Port
Orange	Blue
Orange & White	Green & White
Blue	Orange
Blue & White	Brown & White
Green	Brown
Green & White	Orange & White
Brown & White	Blue & White
Brown	Green



Activate Windows

Go to Settings to activate Windows.



Type here to search



Click on start button:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html - Google Chrome

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Fabricate Cable

Which cable you want to fabricate? Cross

Switch port	PC Port
Orange	Blue
Orange & White	Green & White
Blue	Orange
Blue & White	Brown & White
Green	Brown
Green & White	Orange & White
Brown & White	Blue & White
Brown	Green

Activate Windows
Go to Settings to activate Windows.

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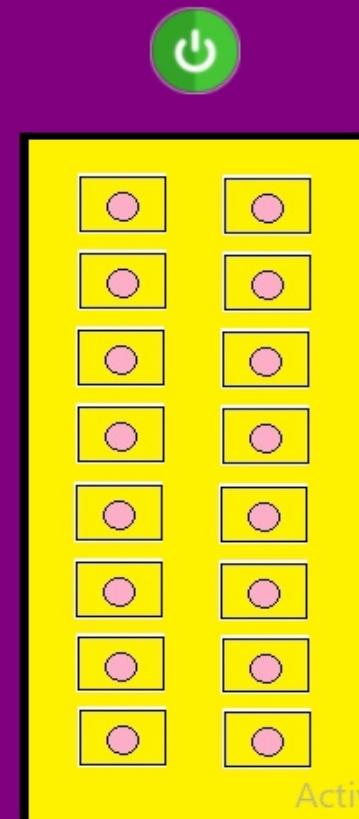
vlabs.iitb.ac.in says

did you made right cable ? (Yes = ok/No = cancel)

OK**Cancel****Which cable you want to fabricate?**

Cross

Switch port	PC Port
Orange	Blue
Orange & White	Green & White
Blue	Orange
Blue & White	Brown & White
Green	Brown
Green & White	Orange & White
Brown & White	Blue & White
Brown	Green



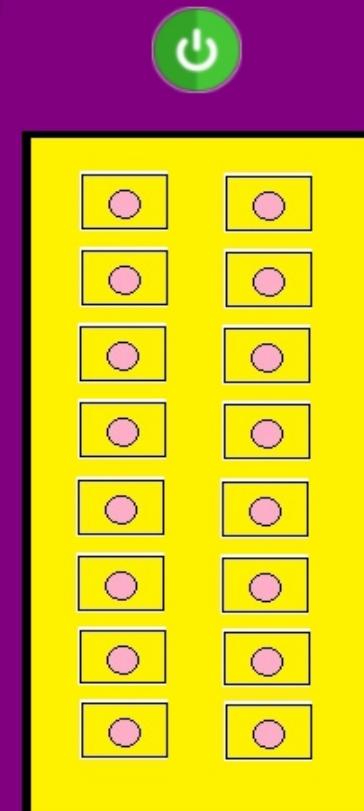
Which cable you want to fabricate?

Cross ▾

vlabs.iitb.ac.in says
cable is right

OK

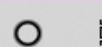
Switch port	PC Port
Orange ▾	Blue ▾
Orange & White ▾	Green & White ▾
Blue ▾	Orange ▾
Blue & White ▾	Brown & White ▾
Green ▾	Brown ▾
Green & White ▾	Orange & White ▾
Brown & White ▾	Blue & White ▾
Brown ▾	Green ▾



Activate Windows
Go to Settings to activate Windows.



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Fabrication of Roleover cable:

Give the correct color code for the ports:

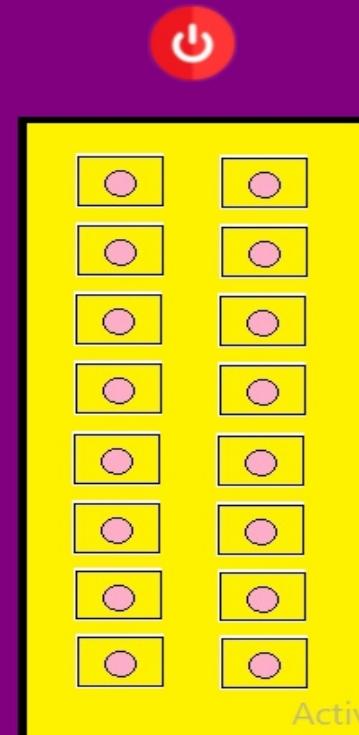
vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp1/exp1.html - Google Chrome

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Fabricate Cable

Which cable you want to fabricate? RoleOver

Switch port	PC Port
Orange	Brown
Orange & White	Brown & White
Blue	Green & White
Blue & White	Green
Green	Blue & White
Green & White	Blue
Brown & White	Orange & White
Brown	Orange



Activate Windows
Go to Settings to activate Windows.

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Click on start button:

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vlabs.iitb.ac.in says
did you made right cable ? (Yes = ok/No = cancel)

OK Cancel

Which cable you want to fabricate? RoleOver

Switch port	PC Port
Orange	Brown
Orange & White	Brown & White
Blue	Green & White
Blue & White	Green
Green	Blue & White
Green & White	Blue
Brown & White	Orange & White
Brown	Orange

Activate Windows
Go to Settings to activate Windows.

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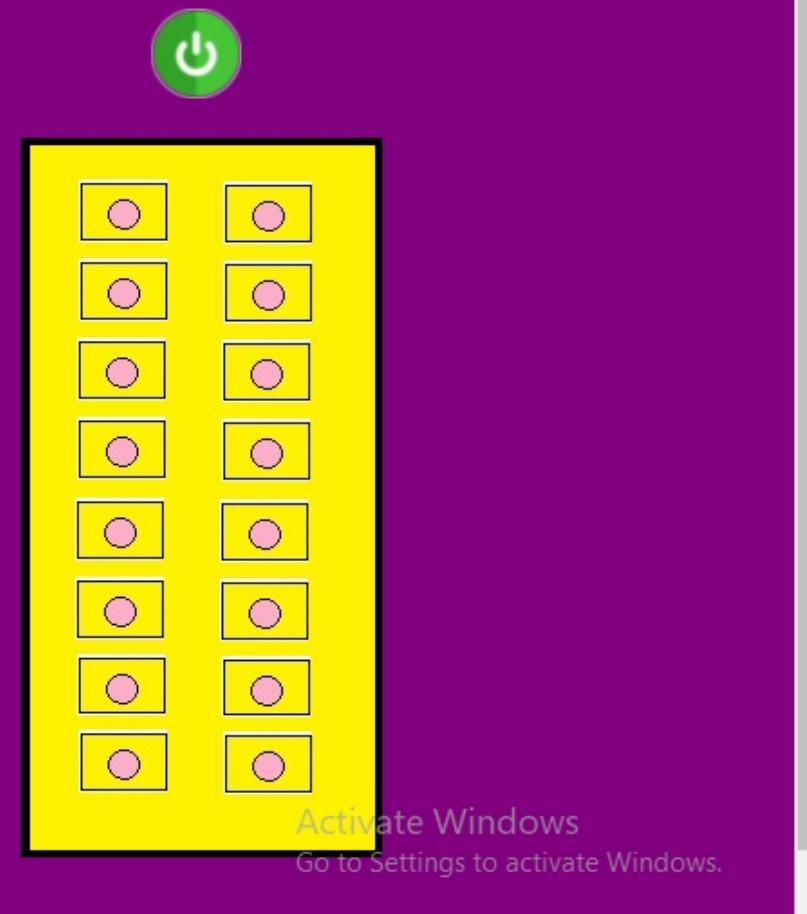
vlabs.iitb.ac.in says
cable is right

OK

Which cable you want to fabricate?

RoleOver ▾

Switch port	PC Port
Orange ▾	Brown ▾
Orange & White ▾	Brown & White ▾
Blue ▾	Green & White ▾
Blue & White ▾	Green ▾
Green ▾	Blue & White ▾
Green & White ▾	Blue ▾
Brown & White ▾	Orange & White ▾
Brown ▾	Orange ▾



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2.Peer to peer topology:

A screenshot of a web browser window displaying a list of topics for a Computer Networks Lab. The browser has a tab titled "Virtual Labs" and a URL bar showing "Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/explist.php". The page header includes the IIT Bombay logo and navigation links for HOME, LABS, and GITLAB. A sidebar on the left lists various lab topics.

Computer Networks Lab

- Fabrication of Cables
- [Peer to Peer Topology](#)
- Star Topology
- IPv4 Addressing
- IPv4 Subnetting
- Windows File Sharing

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Virtual Labs

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IIT Bombay

HOME LABS GITLAB

Computer Networks ≡

Computer Networks > Peer to Peer Topology > Aim

Aim

Theory

Pre Test

Procedure

Simulation

Post Test

References

Peer to Peer Topology

Aim

1) To construct Peer to Peer Topology

Activate Windows
Go to Settings to activate Windows.

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/index.php

Type here to search

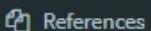
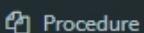
Windows Start File Explorer Google Microsoft Edge

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Computer Networks



Computer Networks > Peer to Peer Topology > Theory



Theory

The word physical network topology is used to explain the manner in which a network is physically connected. Devices or nodes in a network get connected to each other via communication links and all these links are related to each other in one way or the other. The geometric representation of such a relationship of links and nodes is known as the topology of that network.

These topologies can be classified into two types:-

1. Peer to peer
2. Primary - Secondary

Peer to peer is the relationship where the devices share the link equally. The examples are ring and mesh topologies.

In Primary - Secondary relationship, one device controls and the other devices have to transmit through it. For example star and tree topology.

Features of Peer to peer:-

In peer to peer architecture every node is connected to other node directly.

Every computer node is referred as peer.

Every peer provides services to other peers as well as uses services of them.

There is no central server present.

Advantages of Peer to peer:-

- 1) It is easy to install and so is the configuration of computers on this network,
- 2) All the resources and contents are shared by all the peers
- 3) P2P is more reliable as central dependency is eliminated. Failure of one peer doesn't affect the functioning of other peers.
- 4) There is no need for full-time System Administrator. Every user is the administrator of his machine. User can control their shared resources.

Disadvantages of Peer to peer:-

- 1) In this network, the whole system is decentralised thus it is difficult to administer. That is one person cannot determine the whole accessibility setting of whole network.
- 2) Data recovery or backup is very difficult. Each computer should have its own back-up system

Activate Windows

Go to Settings to activate Windows.



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1:00 PM
6/28/2021



Virtual Labs

x +

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/procedure.php

Apps Gmail YouTube Maps WhatsApp Computer Organiza... Binary Search Tree I... Different collision r... Email - 20125A052... Virtual Labs

Reading list

IIT Bombay

HOME LABS GITLAB

Computer Networks

Aim

Theory

Pre Test

Procedure

Simulation

Post Test

References

Peer to Peer Topology

Computer Networks > Peer to Peer Topology > Procedure

Procedure

- 1) The aim is to Create the topology.
- 2) To perform the experiment follow the below steps
- 3) A blank square area would be given which defines the working area
- 4) A series of components would be given
- 5) In order to build a topology first select on the component and then immediately click on the working area to place it
- 6) To draw a line between two components first select the line click on the port of first component and then immediately click on the port of second component
- 7) Once the topology is build then click on the Submit button to test whether the give topology is built correctly or not.

Activate Windows
Go to Settings to activate Windows.

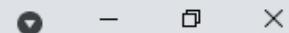




Virtual Labs



Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/simulation.php



Apps



Gmail



YouTube



Maps



WhatsApp



Computer Organiza...



Binary Search Tree I...



Different collision r...



Email - 20125A052...



Virtual Labs

Reading list



HOME

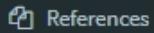
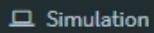
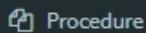
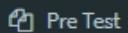
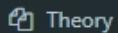
LABS

GITLAB

Computer Networks



Computer Networks > Peer to Peer Topology > Simulation



Simulation

[Click here for Simulation](#)

Peer to Peer Topology

Activate Windows
Go to Settings to activate Windows.

```
javascript:newPopup1('exp2.html');
```

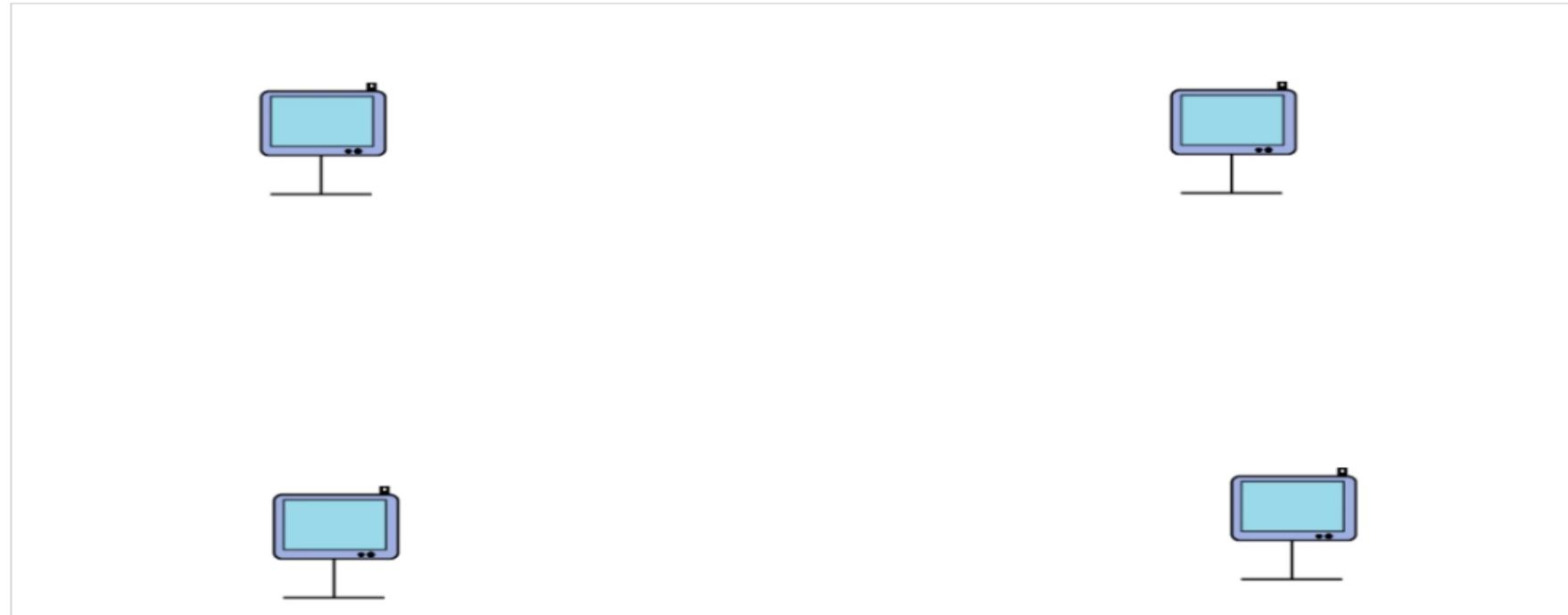


Type here to search

ENG
IN 1:01 PM
6/28/2021

Select 4 computers and place it on the screen:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/exp2.html - Google Chrome
Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/exp2.html



Cross Over



Coxial Cable



RollOver Cable



Straight Cable



COMPUTER

Activate Windows
Go to Settings to activate Windows.



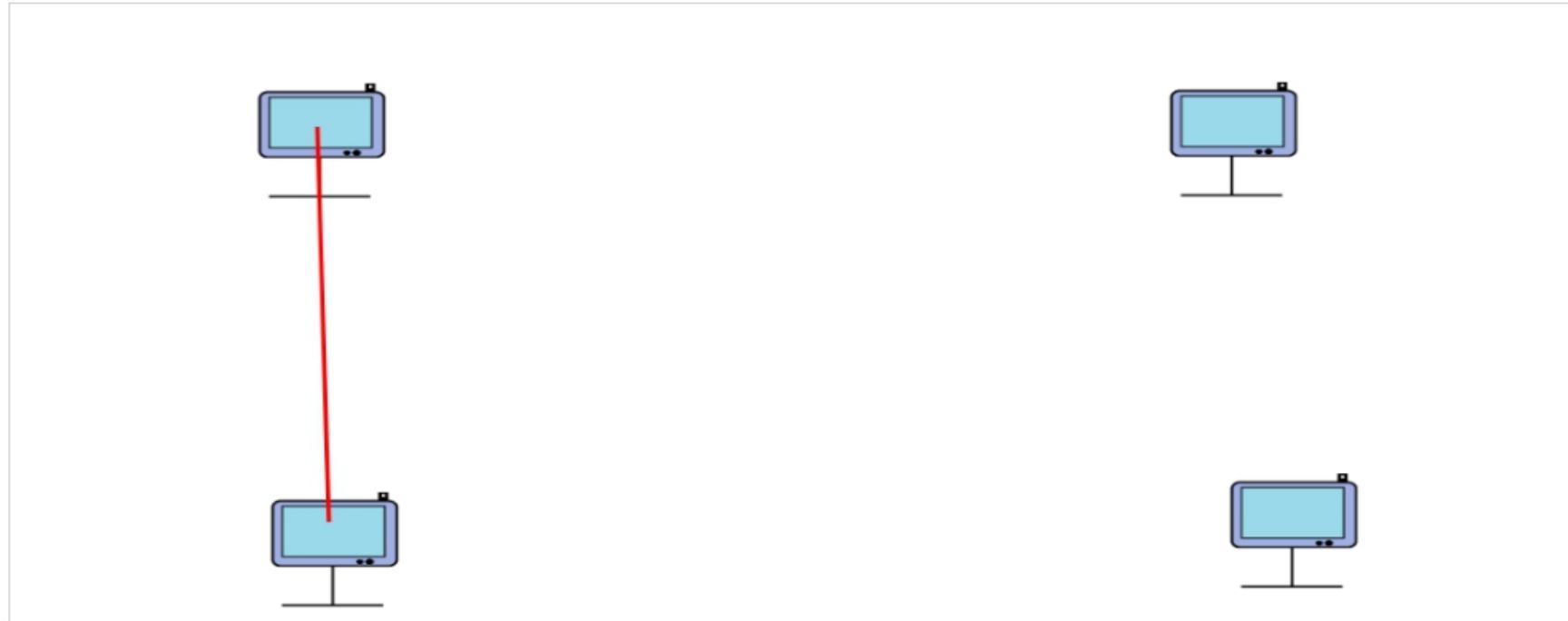
Type here to search



ENG
IN 1:06 PM
6/28/2021

Connect the four computers with crossover cable:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/exp2.html - Google Chrome
Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/exp2.html



Cross Over



Coxial Cable

Fibre Optic



RollOver Cable



Straight Cable



RESET



EVALUATE

COMPUTER

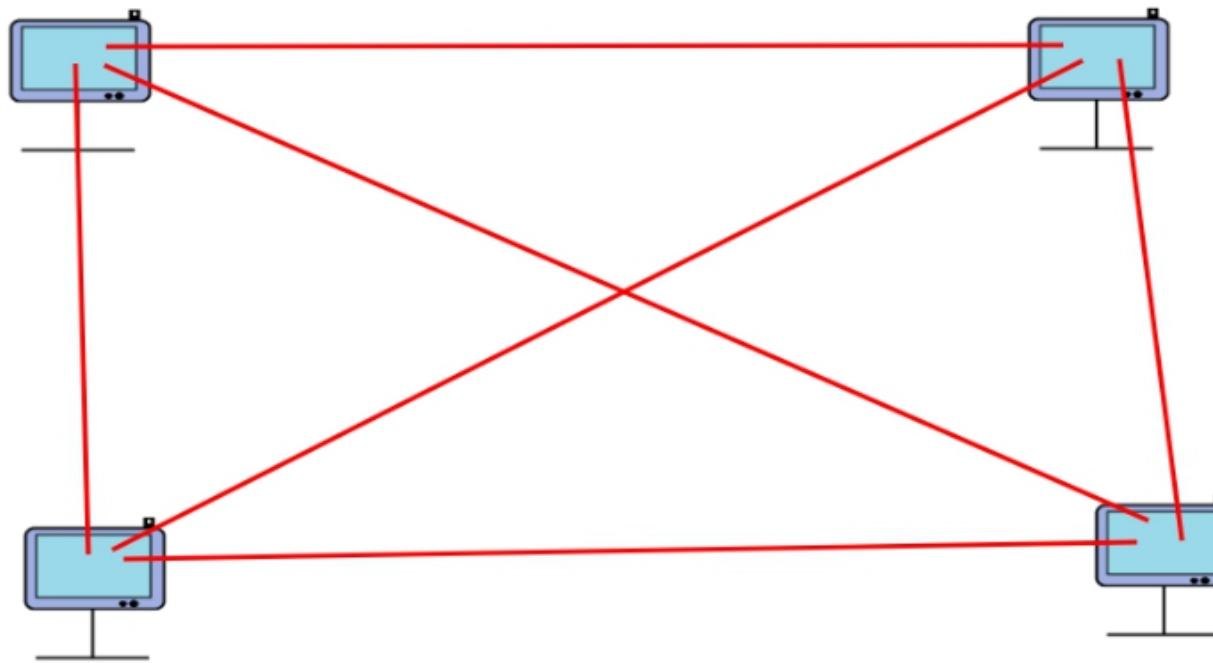
Activate Windows
Go to Settings to activate Windows.



Type here to search



ENG
IN 1:06 PM
6/28/2021



COMPUTER

Cross Over



Coxial Cable

RollOver Cable



Straight Cable



EVALUATE



Type here to search

ENG
IN
1:07 PM
6/28/2021

COMPUTER

Activate Windows
Go to Settings to activate Windows.

Click on evaluate:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/exp2.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp2/exp2.html

vlabs.iitb.ac.in says
Computers are connected in peer to peer

OK

Cross Over

Coxial Cable

Fibre Optic

RollOver Cable

Straight Cable

RESET

EVALUATE

COMPUTER

Activate Windows
Go to Settings to activate Windows.

Type here to search

1:07 PM
6/28/2021

3. Star topology:

A screenshot of a web browser window titled "Virtual Labs". The address bar shows the URL "Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3list.php". The page content is titled "Computer Networks Lab" and contains a sidebar with the following links:

- Fabrication of Cables
- Peer to Peer Topology
- Star Topology
- IPv4 Addressing
- IPv4 Subnetting
- Windows File Sharing

A screenshot of a Windows taskbar. The system tray icons include a battery (50%), signal strength, volume, and a small orange icon. The system status bar at the bottom right shows "Activate Windows Go to Settings to activate Windows.", the date "6/28/2021", the time "1:08 PM", and the language "ENG IN". The taskbar also features a search bar with the placeholder "Type here to search" and several pinned application icons: File Explorer, Edge, File History, Task View, Google Chrome, Microsoft Word, and Microsoft Powerpoint.



HOME LABS GITLAB

Computer Networks



Computer Networks > Star Topology > Aim



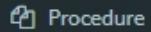
Aim



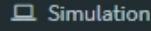
Theory



Pre Test



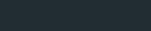
Procedure



Simulation



Post Test



Aim

- 1) To Construct Star Topology

Star Topology

Activate Windows
Go to Settings to activate Windows.

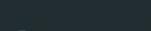
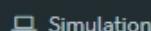
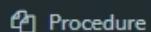
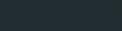


Type here to search



ENG IN 1:08 PM 6/28/2021





Star Topology

Theory

The word physical network topology is used to explain the manner in which a network is physically connected. Devices or nodes in a network get connected to each other via communication links and all these links are related to each other in one way or the other. The geometric representation of such a relationship of links and nodes is known as the topology of that network.

These topologies can be classified into two types:-

1. Peer to peer
2. Primary - Secondary

Peer to peer is the relationship where the devices share the link equally. The examples are ring and mesh topologies.

In Primary - Secondary relationship, one device controls and the other devices have to transmit through it. For example star and tree topology.

Features of Star Topology:-

- 1) Every node has its own dedicated connection to the hub.
- 2) Hub acts as a repeater for data flow.
- 3) Can be used with twisted pair, Optical Fibre or coaxial cable.

Advantages of Star Topology:-

- 1) Fast performance with few nodes and low network traffic.
- 2) Hub can be upgraded easily.
- 3) Easy to troubleshoot.
- 4) Easy to setup and modify.
- 5) Only that node is affected which has failed, rest of the nodes can work smoothly.

Disadvantages of Star Topology:-

- 1) Cost of installation is high.
- 2) Expensive to use.
- 3) If the hub fails then the whole network is stopped because all the nodes depend on the hub.
- 4) Performance is based on the hub that is it depends on its capacity.

Activate Windows

Go to Settings to activate Windows.



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6/28/2021



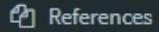
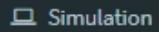
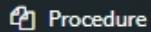
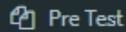


HOME LABS GITLAB

Computer Networks



Computer Networks > Star Topology > Procedure



Star Topology

Procedure

- 1) The aim is to Create the topology.
- 2) To perform the experiment follow the below steps
- 3) A blank square area would be given which defines the working area
- 4) A series of components would be given
- 5) In order to build a topology first select on the component and then immediately click on the working area to place it
- 6) To draw a line between two components first select the line click on the port of first component and then immediately click on the port of second component
- 7) Once the topology is build then click on the Submit button to test whether the give topology is built correctly or not.

Activate Windows
Go to Settings to activate Windows.



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Computer Networks



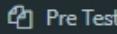
Computer Networks > Star Topology > Simulation



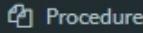
Aim



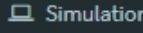
Theory



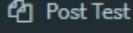
Pre Test



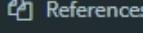
Procedure



Simulation



Post Test



References

Star Topology

Simulation

[Click here for Simulation](#)[Pop Up Procedure](#)Activate Windows
Go to Settings to activate Windows.

javascript:newPopup1('exp3.html');



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IN
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6/28/2021

After clicking on simulation a new tab will display:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html



Activate Windows
Go to Settings to activate Windows.



Type here to search



ENG
IN 1:15 PM
6/28/2021

Select the hub and place it on the screen:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html

CISCO

Cross Over

Coaxial Cable

Fibre Optic

RollOver Cable

Straight Cable

RESET

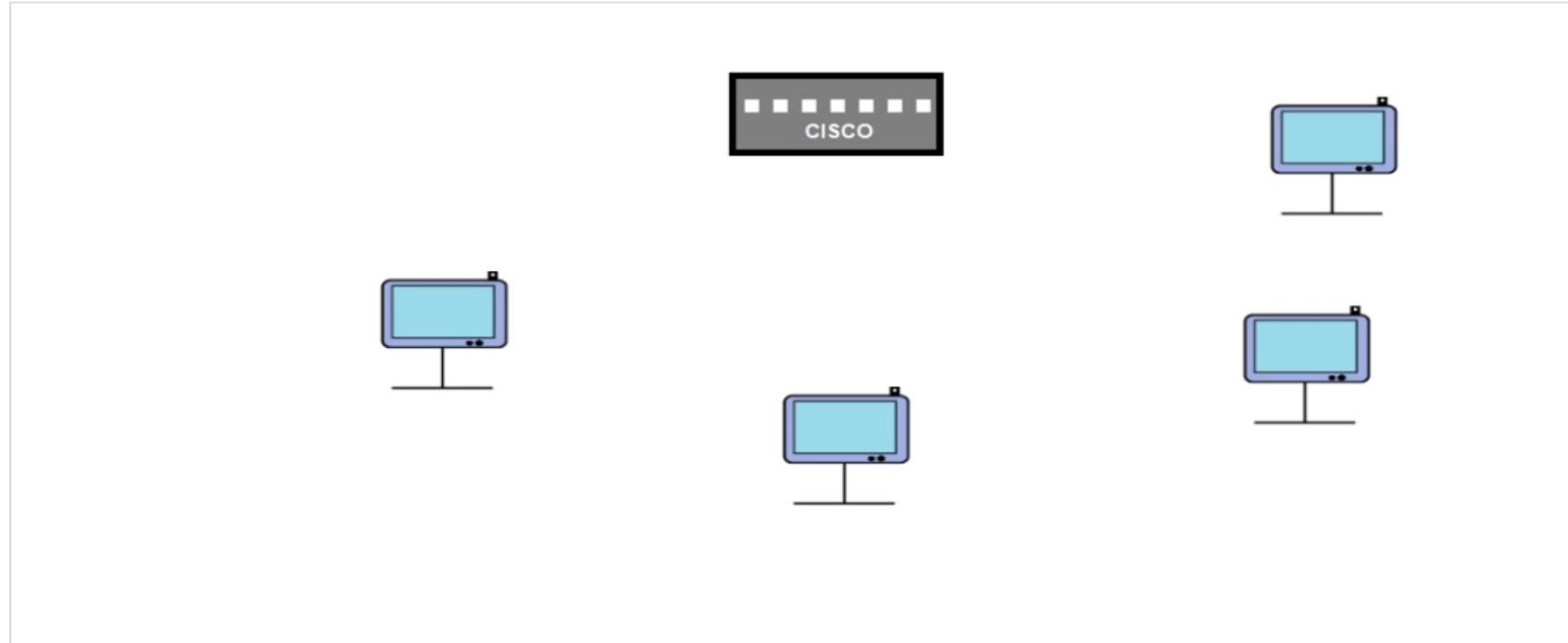
EVALUATE

Activate Windows
Go to Settings to activate Windows.

Type here to search

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ENG IN
6/28/2021

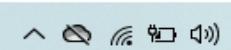
Next select 4 computers place it on screen:



Activate Windows
Go to Settings to activate Windows.



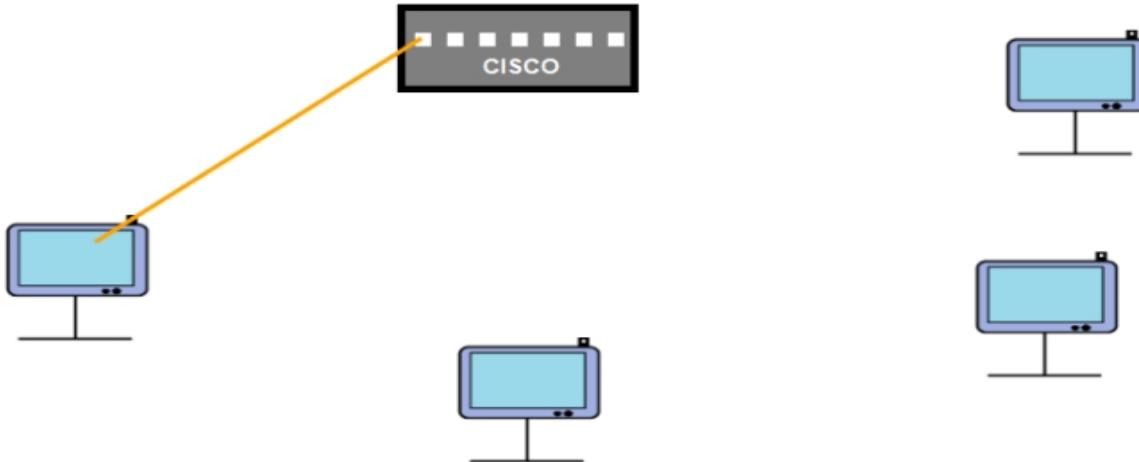
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ENG
IN
1:15 PM
6/28/2021

Connect the computers to the hub with the rollover cable:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html - Google Chrome
Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html



Cross Over



Coxial Cable



Fibre Optic



Rollover Cable



Straight Cable



RESET



EVALUATE

Activate Windows
Go to Settings to activate Windows.



Type here to search

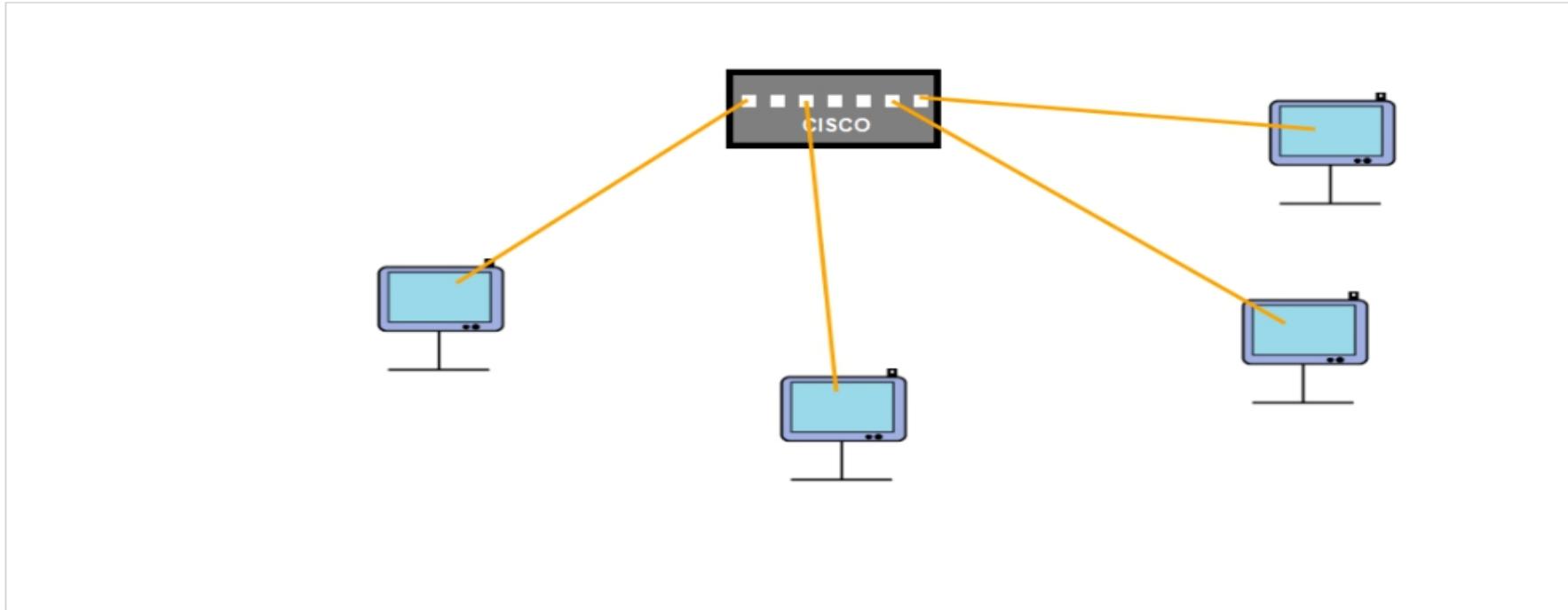


ENG
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1:15 PM
6/28/2021



Click on evaluate:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html - Google Chrome
Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp3/exp3.html



Activate Windows
Go to Settings to activate Windows.



Type here to search



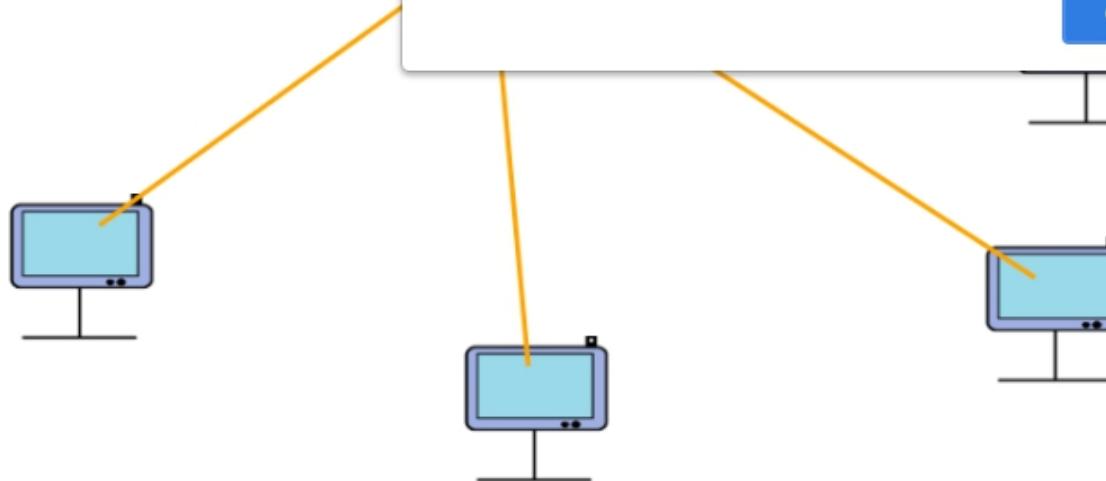
ENG
IN 1:16 PM
6/28/2021



vlabs.iitb.ac.in says

Computers are connected in star topology

OK



Cross Over



Coxial Cable



Fibre Optic



RollOver Cable



Straight Cable



RESET

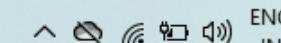


EVALUATE

Activate Windows
Go to Settings to activate Windows.



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ENG
IN 1:16 PM
6/28/2021

4. IPV4 Addressing:

A screenshot of a web browser window displaying a list of topics for a Computer Networks Lab. The browser interface includes a header with the IIT Bombay logo and navigation links for HOME, LABS, and GITLAB. The main content area features a sidebar with a vertical list of topics: Fabrication of Cables, Peer to Peer Topology, Star Topology, IPv4 Addressing, IPv4 Subnetting, and Windows File Sharing. The background of the page is blue, and the overall layout is clean and organized.

Virtual Labs Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/explist.php

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IIT Bombay HOME LABS GITLAB

Fabrication of Cables

Peer to Peer Topology

Star Topology

IPv4 Addressing

IPv4 Subnetting

Windows File Sharing

Vlabs-Dev Team

Activate Windows Go to Settings to activate Windows.

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/index.php

Type here to search

1:16 PM 6/28/2021 ENG IN



Aim



Theory



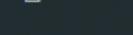
Pre Test



Procedure



Simulation



Post Test



Aim

- 1) To give IP Address of different classes in given Network id.

IPv4 Addressing

Activate Windows
Go to Settings to activate Windows.



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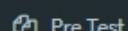
ENG IN 1:16 PM 6/28/2021



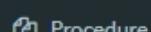
Aim



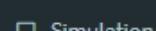
Theory



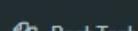
Pre Test



Procedure



Simulation



Post Test



Theory

IP addresses enable computers to communicate by providing unique identifiers for the computer itself and for the network over which it is located. An IP address is a 32 bit value that contains a network identifier(net-id) and a host identifier (host-id).

The network administrators need to assign IP addresses to the system on their network. This address needs to be a unique one. All the computers on a particular subnet will have the same network identifier but different host identifiers. The Internet Assigned Numbers Authority (IANA) assigns network identifiers to avoid any duplication of addresses.

Host Identifier Network Identifier 32 bits

The 32 bit IPv4 address is grouped into groups of eight bits, separated by dots. Each 8 bit group is then converted into its equivalent binary number. Thus each octet (8bit) can take value from 0 to 255. The IPv4 in the dotted decimal notation can range from 0.0.0.0 to 255.255.255.255. The IPv4 Address are classified into 5 types as follows:

1. Class A
2. Class B
3. Class C
4. Class D
5. Class E

Class A

The first bit of the first octet is always set to 0 (zero). Thus the first octet ranges from 1-127 i.e.

00000000 - 01111111

1-127

Class A addresses only include IP starting from 1.x.x.x to 126.x.x.x only. The IP range 127.x.x.x is reserved for loopback IP addresses. The default subnet mask for class Class A IP address is 255.0.0.0 which implies that Class A addressing can have 126 networks and 16777214 hosts. Class A IP address format is thus : 0NNNNNNN.HHHHHHHH.HHHHHHHH.HHHHHHHH

Class B

An IP address which belongs to class B has the first two bits in the first octet set to 10, i.e.

10000000 - 10111111

128 - 191

Class B IP Addresses range from 128.0.x.x to 191.255.x.x. The default subnet mask for Class B is 255.255.x.x. Class B has 16384 Network addresses and 65534 Host addresses. Class B IP addresses format is: 10NNNNNN.NNNNNNNN.HHHHHHHH.HHHHHHHH

Class C

The first octet of Class C IP address has its first 3 bits set to 110,that is:

11000000 - 11011111

192 - 223

Class C IP addresses range from 192.0.0.x to 223.255.255.x. The default subnet mask for Class C is 255.255.255.x. Class C gives 2097152 Network addresses and 254 Host addresses. Class C IP address format is : 110NNNNN.NNNNNNNN.NNNNNNNN.HHHHHHHH

Activate Windows
Go to Settings to activate Windows



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ENG
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6/28/2021

Virtual Labs x +

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IIT Bombay

HOME LABS GITLAB

Computer Networks ≡

Computer Networks > IPv4 Addressing > Procedure

IPv4 Addressing

Procedure

1) The aim is to Give IP Addresses to the PCs.
2) To perform the experiment follow the below steps
3) A choice list would be given defining the Classes
4) The user has to select the class in which they choose to give IP Addresses
5) After that a Network ID would be given and the user has to enter the IP Addresses according to the Network ID.
6) Click on submit to test whether the IP address given to PCs make them into Network or not.

Activate Windows
Go to Settings to activate Windows.

Type here to search

Windows Start Task View File Home Back Forward Stop Refresh

ENG IN 1:17 PM 6/28/2021

Virtual Labs x +

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/simulation.php

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IIT Bombay

HOME LABS GITLAB

Computer Networks ≡ Computer Networks > IPv4 Addressing > Simulation

Aim

Theory

Pre Test

Procedure

Simulation

[Click here for Simulation](#)

IPv4 Addressing

Pop Up Procedure

Activate Windows
Go to Settings to activate Windows.

javascript:newPopup1('expipv4.html');

Type here to search

O Task View Edge Microsoft Store Camera WPS Office Photos

ENG IN 1:17 PM 6/28/2021

Select any one of the class:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html

IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

C Class

A Class

B Class

C Class

PC 1: 

IPv4 Address:
Subnet Mask :

PC 2: 

IPv4 Address:
Subnet Mask :

PC 3: 

IPv4 Address:
Subnet Mask :

EVALUATE

Activate Windows
Go to Settings to activate Windows.

Give the IPV4 address and subnet mask:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html

IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 23.0.0.0 in Class A

PC 1:	IPv4 Address:	23	167	187	234
	Subnet Mask :	255	0	0	0

PC 2:	IPv4 Address:	23	111	178	1
	Subnet Mask :	255	0	0	0

PC 3:	IPv4 Address:	23	200	189	12
	Subnet Mask :	255	0	0	0

Activate Windows
Go to Settings to activate Windows.

IP Addressing for class A:



IPv4 Addressing

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 23.0.0.0 in Class A



PC 1:

IPv4 Address:	23	167	187	234
Subnet Mask :	255	0	0	0



PC 2:

IPv4 Address:	23	111	178	1
Subnet Mask :	255	0	0	0



PC 3:

IPv4 Address:	23	200	189	12
Subnet Mask :	255	0	0	0

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows

Go to Settings to activate Windows.



Type here to search



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Select class B:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html - Google Chrome

Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html

IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

B Class ▾ Submit
C Class
B Class
A Class

Give IP Addresses for the following Computers with a Network id 178.73.0.0 in Class B

PC 1:  IPv4 Address: [23] [167] [187] [234]
Subnet Mask : [255] [0] [0] [0]

PC 2:  IPv4 Address: [23] [111] [178] [1]
Subnet Mask : [255] [0] [0] [0]

PC 3:  IPv4 Address: [23] [200] [189] [12]
Subnet Mask : [255] [0] [0] [0]

EVALUATE

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows
Go to Settings to activate Windows.



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IP Addressing for class B:



IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 135.175.0.0 in Class B

PC 1:  IPv4 Address: <input type="text" value="135"/> <input type="text" value="175"/> <input type="text" value="187"/> <input type="text" value="234"/> Subnet Mask : <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/>	PC 2:  IPv4 Address: <input type="text" value="135"/> <input type="text" value="175"/> <input type="text" value="178"/> <input type="text" value="1"/> Subnet Mask : <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/>	PC 3:  IPv4 Address: <input type="text" value="135"/> <input type="text" value="175"/> <input type="text" value="189"/> <input type="text" value="12"/> Subnet Mask : <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/>
--	--	---

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows
Go to Settings to activate Windows.



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Select class C:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html - Google Chrome

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IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

C Class

- C Class
- B Class
- A Class



PC 1:

IPv4 Address:
Subnet Mask :



PC 2:

IPv4 Address:
Subnet Mask :



PC 3:

IPv4 Address:
Subnet Mask :

EVALUATE

Activate Windows
Go to Settings to activate Windows.



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Click on evaluate:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp4/expipv4.html - Google Chrome

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IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 214.76.210.0 in Class C

PC 1:	
IPv4 Address:	<input type="text" value="214"/> <input type="text" value="76"/> <input type="text" value="210"/> <input type="text" value="234"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>

PC 2:	
IPv4 Address:	<input type="text" value="214"/> <input type="text" value="76"/> <input type="text" value="210"/> <input type="text" value="1"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>

PC 3:	
IPv4 Address:	<input type="text" value="214"/> <input type="text" value="76"/> <input type="text" value="210"/> <input type="text" value="12"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>

Activate Windows
Go to Settings to activate Windows.



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IP Addressing for class C:



IPV4 Addressing

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 214.76.210.0 in Class C



PC 1:

IPv4 Address:	214	76	210	234
Subnet Mask :	255	255	255	0



PC 2:

IPv4 Address:	214	76	210	1
Subnet Mask :	255	255	255	0



PC 3:

IPv4 Address:	214	76	210	12
Subnet Mask :	255	255	255	0

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows
Go to Settings to activate Windows.



Type here to search



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5. IPV4 subnetting:

A screenshot of a web browser window. The address bar shows the URL: vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp5/index.php. The page title is "Computer Networks Lab". On the left, there is a sidebar with a list of topics:

- Fabrication of Cables
- Peer to Peer Topology
- Star Topology
- IPv4 Addressing
- IPv4 Subnetting (This topic is underlined, indicating it is currently selected or being viewed)
- Windows File Sharing

A screenshot of a Windows taskbar. The system tray icons include:

- Activate Windows: Go to Settings to activate Windows.
- Network status: Connected to a Wi-Fi network.
- Volume: Muted.
- Battery: High power level.
- Language: ENG IN
- Date and Time: 1:32 PM 6/28/2021

The taskbar also features a search bar with the placeholder "Type here to search" and several pinned application icons.

Virtual Labs x +

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Computer Networks ≡

IPv4 Subnetting

Aim

Theory

Pre Test

Procedure

Simulation

Post Test

References

Aim

1) To give IP Address of different classes in given Network id and Subnet.

Activate Windows
Go to Settings to activate Windows.



Type here to search



Aim**Theory****Pre Test****Procedure****Simulation****Post Test****References**

IPv4 Subnetting

Theory

Each IP class is equipped with its own default subnet mask which bounds that IP class to have prefixed number of Networks and prefixed number of Hosts per network. Glassful IP addressing does not provide any flexibility of having less number of Hosts per Network or more Networks per IP Class. CIDR or Classless Inter Domain Routing provides the flexibility of borrowing bits of Host part of the IP address and using them as Network in Network, called Subnet. By using subnetting, one single Class A IP address can be used to have smaller sub_networks which provides better network management capabilities.

Class A

In Class A, only the first octet is used as Network identifier and rest of three octets are used to be assigned to Hosts (i.e 16777214 Hosts per Network). To make more subnet in Class A, bits from Host part are borrowed and the subnet mask is changed accordingly. For example, if one MSB (Most Significant Bit) is borrowed from host bits of second octet and added to Network address, it creates two Subnets with 8388606 Hosts per Subnet. The Subnet mask is changed accordingly to reflect subnetting. Given below is list of all possible combination of Class A subnets:

11	255.224.0.0	3	8	2097150
12	255.240.0.0	4	16	1048574
13	255.248.0.0	5	32	524286
14	255.252.0.0	6	64	262142
15	255.254.0.0	7	128	131070
16	255.255.0.0	8	256	65534
17	255.255.128.0	9	512	32766
18	255.255.192.0	10	1024	16382
19	255.255.224.0	11	2048	8190
20	255.255.240.0	12	4096	4094
21	255.255.248.0	13	8192	2046
22	255.255.252.0	14	16384	1022
23	255.255.254.0	15	32768	510
24	255.255.255.0	16	65536	254
25	255.255.255.128	17	131072	126
26	255.255.255.192	18	262144	62
27	255.255.255.224	19	524288	30
28	255.255.255.240	20	1048576	14

Class B

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Class B

By default, using Glassful Networking, 14 bits are used as Network bits providing 16384 Networks and 65534 Hosts. Class B IP Addresses can be subnetted the same way as Class A addresses, by borrowing bits from Host bits. Below is given all possible combination of Class B subnetting:

Network Bits	Subnet Mask	Bits Borrowed	Subnets	Hosts/Subnet
16	255.255.0.0	0	0	65534
17	255.255.128.0	1	2	32766
18	255.255.192.0	2	4	16382
19	255.255.224.0	3	8	8190
20	255.255.240.0	4	16	4094
21	255.255.248.0	5	32	2046
22	255.255.252.0	6	64	1022
23	255.255.254.0	7	128	510
24	255.255.255.0	8	256	254
25	255.255.255.128	9	512	126
26	255.255.255.192	10	1024	62
27	255.255.255.224	11	2048	30
28	255.255.255.240	12	4096	14
29	255.255.255.248	13	8192	6
30	255.255.255.252	14	16384	2

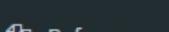
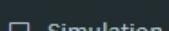
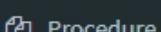
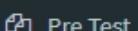
Class C

Class C IP addresses are normally assigned to every small size networks because it can only have 254 hosts in a network. Given below is a list of all possible combination of subnetted Class B IP addresses:

Network Bits	Subnet Mask	Bits Borrowed	Subnets	Hosts/Subnet
24	255.255.255.0	0	1	254
25	255.255.255.128	1	2	126
26	255.255.255.192	2	4	62
27	255.255.255.224	3	8	30
28	255.255.255.240	4	16	14
29	255.255.255.248	5	32	6
30	255.255.255.252	6	64	2

Activate Windows

Go to Settings to activate Windows.



IPv4 Subnetting

Procedure

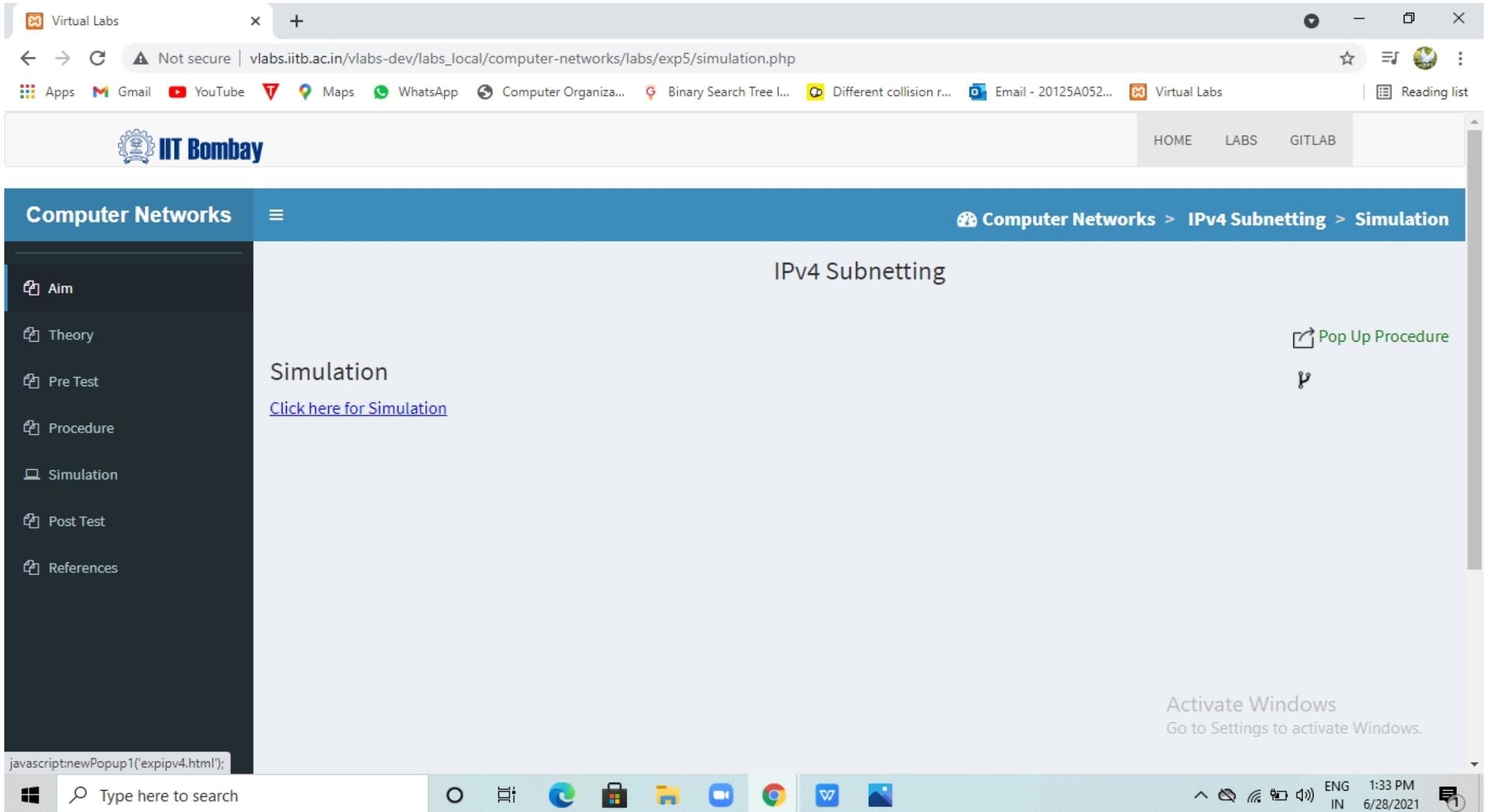
- 1) The aim is to Give IP Addresses to the PCs.
- 2) To perform the experiment follow the below steps
- 3) A choice list would be given defining the Classes
- 4) The user has to select the class in which they choose to give IP Addresses
- 5) After that a Network ID would be given and the user has to enter the IP Addresses according to the Network ID.
- 6) Click on submit to test whether the IP address given to PCs make them into Network or not.

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Select the class A and give the IPv4 Address and subnet mask:

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IPv4 Subnetting

Choose the Class in which the Ip addressing is to be done

C Class C Class
C Class
B Class
A Class

PC 1: 

IPv4 Address:
Subnet Mask :

PC 2: 

IPv4 Address:
Subnet Mask :

PC 3: 

IPv4 Address:
Subnet Mask :

Activate Windows
Go to Settings to activate Windows.

Click on evaluate, IP subnetting of class A:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp5/expipv4.html - Google Chrome

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IPV4 Subnetting

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 75.0.0.0 in Class A

PC 1:	
IPv4 Address:	<input type="text" value="75"/> <input type="text" value="167"/> <input type="text" value="12"/> <input type="text" value="234"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>

PC 2:	
IPv4 Address:	<input type="text" value="75"/> <input type="text" value="187"/> <input type="text" value="17"/> <input type="text" value="1"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>

PC 3:	
IPv4 Address:	<input type="text" value="75"/> <input type="text" value="200"/> <input type="text" value="168"/> <input type="text" value="2"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows
Go to Settings to activate Windows.

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Select class B:

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IPV4 Subnetting

Choose the Class in which the Ip addressing is to be done

C Class ▾ Submit

B Class (Selected)

A Class

PC 1:

IPv4 Address: [] [] [] []

Subnet Mask : [] [] [] []

PC 2:

IPv4 Address: [] [] [] []

Subnet Mask : [] [] [] []

PC 3:

IPv4 Address: [] [] [] []

Subnet Mask : [] [] [] []

EVALUATE

Activate Windows
Go to Settings to activate Windows.

Give the ipv4 addressing and subnet mask:



IPV4 Subnetting

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 145.153.0.0 in Class B



PC 1:

IPv4 Address:	145	153	16	234
Subnet Mask :	255	255	0	0



PC 2:

IPv4 Address:	145	153	96	12
Subnet Mask :	255	255	0	0



PC 3:

IPv4 Address:	145	153	168	1
Subnet Mask :	255	255	0	0

Activate Windows
Go to Settings to activate Windows.



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Click on evaluate:

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IPV4 Subnetting

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 145.153.0.0 in Class B

	PC 1:
IPv4 Address:	<input type="text" value="145"/> <input type="text" value="153"/> <input type="text" value="16"/> <input type="text" value="234"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/>

	PC 2:
IPv4 Address:	<input type="text" value="145"/> <input type="text" value="153"/> <input type="text" value="96"/> <input type="text" value="12"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/>

	PC 3:
IPv4 Address:	<input type="text" value="145"/> <input type="text" value="153"/> <input type="text" value="168"/> <input type="text" value="1"/>
Subnet Mask :	<input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/>

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows
Go to Settings to activate Windows.



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Select class C:

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IPV4 Subnetting

Choose the Class in which the Ip addressing is to be done

C Class

PC 1: 

IPv4 Address:
Subnet Mask :

PC 2: 

IPv4 Address:
Subnet Mask :

PC 3: 

IPv4 Address:
Subnet Mask :

Activate Windows
Go to Settings to activate Windows.

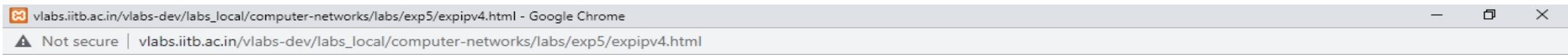


Type here to search



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Give the IPV4 addressing and subnet mask:



IPV4 Subnetting

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 203.104.2.0 in Class C

 PC 1: IPv4 Address: <input type="text" value="230"/> <input type="text" value="104"/> <input type="text" value="2"/> <input type="text" value="234"/> Subnet Mask : <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>	 PC 2: IPv4 Address: <input type="text" value="203"/> <input type="text" value="104"/> <input type="text" value="2"/> <input type="text" value="1"/> Subnet Mask : <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>	 PC 3: IPv4 Address: <input type="text" value="203"/> <input type="text" value="104"/> <input type="text" value="2"/> <input type="text" value="187"/> Subnet Mask : <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>
<input type="button" value="EVALUATE"/>		

Activate Windows
Go to Settings to activate Windows.

Click on evaluate:

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp5/expipv4.html - Google Chrome
Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp5/expipv4.html

IPv4 Subnetting

Choose the Class in which the Ip addressing is to be done

Give IP Addresses for the following Computers with a Network id 203.104.2.0 in Class C



PC 1:
IPv4 Address:
Subnet Mask :



PC 2:
IPv4 Address:
Subnet Mask :



PC 3:
IPv4 Address:
Subnet Mask :

PC 1 in Network

PC 2 in Network

PC 3 in Network

Activate Windows
Go to Settings to activate Windows.



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6.Windows file sharing:

A screenshot of a web browser window titled "Virtual Labs". The address bar shows "Not secure | vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp7/index.php". The page content is titled "Computer Networks Lab" and features a sidebar with links to various topics: "Fabrication of Cables", "Peer to Peer Topology", "Star Topology", "IPv4 Addressing", "IPv4 Subnetting", and "Windows File Sharing". The "Windows File Sharing" link is underlined, indicating it is the current section being viewed. The browser interface includes a top navigation bar with tabs for "HOME", "LABS", and "GITLAB", and a bottom taskbar with icons for search, file operations, and system status.

Virtual Labs

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HOME LABS GITLAB

Computer Networks Lab

- Fabrication of Cables
- Peer to Peer Topology
- Star Topology
- IPv4 Addressing
- IPv4 Subnetting
- Windows File Sharing

Activate Windows
Go to Settings to activate Windows.

vlabs.iitb.ac.in/vlabs-dev/labs_local/computer-networks/labs/exp7/index.php

Type here to search

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Computer Networks ≡

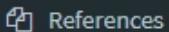
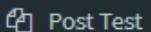
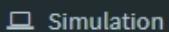
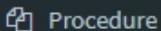
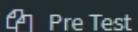
Windows File Sharing > Aim

Windows File Sharing

Aim

1) To share a folder from a computer and access the shared folder from another computer.

Activate Windows
Go to Settings to activate Windows.



Windows File Sharing

Theory

It's a common situation — you have several computers near each other and you want to transfer files between them. You don't have to pull out a USB drive, nor do you have to send them over email — there are faster, easier ways.

This is easier than it was in the past, as you don't have to mess with any complicated Windows networking settings. There are lots of ways to share files, but we'll cover some of the best.

Windows Homegroup

Assuming the computers are using Windows 7 or Windows 8, a Windows Homegroup is one of the easiest ways to share files between them. Windows home networking has been extremely complicated to configure in the past, but Homegroup is easy to set up. Just create a Homegroup from the Homegroup option within Windows Explorer (File Explorer on Windows 8) and you'll get a password. Enter that password on nearby computers and they can join your Homegroup. They'll then have access to your shared files when they're on the same network — you can select the libraries you want to share while creating a Homegroup.

Activate Windows
Go to Settings to activate Windows.



Type here to search

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Aim



Theory



Pre Test



Procedure



Simulation



Post Test



References

Windows File Sharing

Procedure

- 1) The aim is to Share the files between Two Pc's.
- 2) To perform the experiment follow the below steps
- 3) Click on the first Pc
- 4) Follow the step to share a folder from the given location
- 5) Close the Pc by clicking on the black bar
- 6) Click on second Pc
- 7) follow the step to access the files
- 8) Close the Pc
- 9) If all the steps are performed correctly then Experiment is successful
- 10) Else Need to do it again

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Computer Networks



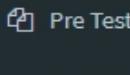
Computer Networks > Windows File Sharing > Simulation



Aim



Theory



Pre Test



Procedure



Simulation



Post Test



References

Windows File Sharing

Simulation

[Click here for Simulation](#)[Pop Up Procedure](#)

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